UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/931,088	08/15/2001	Eugene W. Lee	3981-6	2875

69032   7590   05/09/2007

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ART UNIT	PAPER NUMBER
2137	

MAIL DATE	DELIVERY MODE
05/09/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 February 2007*.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *19-30* is/are pending in the application.

　4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *19-30* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *15 February 2007* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

　Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

　Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

　a)☐ All　b)☐ Some *　c)☐ None of:

　　1.☐ Certified copies of the priority documents have been received.

　　2.☐ Certified copies of the priority documents have been received in Application No. _____.

　　3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

　* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
　　Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
　　Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1.   A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 23 January 2006 has been entered. However, this submission did not comply with the provisions of 37 CFR 1.121, as noted in the Notice of Non-Compliant Amendment mailed 13 February 2006. As Applicant did not receive such Notice, the present application became abandoned. Applicant filed a petition to revive the application, which was received on 11 September 2006, such petition being granted 05 December 2006. The period for response to the Notice of Non-Compliant Amendment was restarted as of 04 January 2007.

2.   A reply to this notice was received on 19 January 2007. By this reply, Claims 19, 22, 23, 25, and 29 have been amended. No claims have been added or canceled. Claims 19-30 are currently pending in the present application. The amendments to the drawings in this reply failed to comply with the provisions of 37 CFR 1.121, and a Notice of Non-Compliant Amendment was mailed 29 January 2007. A supplemental reply with the corrected section was received on 15 February 2007.

Response to Arguments

3.   Applicant's arguments with respect to claims 19-30 have been considered but are moot in view of the new ground(s) of rejection.

Drawings

4.   The objection to the drawings for informalities is NOT withdrawn. Although Applicant has corrected the informalities noted in the previous Office action, further informalities are noted below.

5.   The drawings are objected to because in Figure 8, de-scrambler 118 is also marked with a label indicating it is a "scrambler for back plane connectivity". Since element 118 is labeled as both a "scrambler" and a "de-scrambler", this contradiction makes the drawings unclear. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several

views of the drawings for consistency. Additional replacement sheets may be necessary

to show the renumbering of the remaining figures. Each drawing sheet submitted after

the filing date of an application must be labeled in the top margin as either

"Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are

not accepted by the examiner, the applicant will be notified and informed of any required

corrective action in the next Office action. The objection to the drawings will not be held

in abeyance.

Specification

6.   The specification is objected to as failing to provide proper antecedent basis for

the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction

of the following is required: The specification does not provide proper antecedent basis

for the claimed limitations of "a reconfigurable switch fabric", "switch fabric ports",

"retransmitting" data, and "a backplane coupled to the switch fabric ports". See below

regarding the rejection under 35 U.S.C. 112, first paragraph, for further detail.

Claim Rejections - 35 USC § 112

7.   The rejection of Claims 23, 24, and 30 under 35 U.S.C. 112, second paragraph,

as indefinite is withdrawn in light of the amendments to the claims.

8.   The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

9.   Claims 19-30 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claims contain subject matter that was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Specifically, independent Claim 19 has been amended to include the limitations of "a reconfigurable switch fabric for receiving scrambled data at a first switch fabric port and retransmitting the scrambled data, respectively, at at least one switch fabric port selected from a second plurality of switch fabric ports"; "a backplane coupled to the switch fabric ports"; "sending [bits] over the backplane to the first switch fabric port"; and "retransmission [of bits] over the backplane from one of the second plurality of switch fabric ports". Further, independent Claim 25 has been amended to include the limitations of "transmitting ... bits over a backplane to a reconfigurable switch fabric"; and "retransmitting the ... bits over the backplane from the reconfigurable switch fabric". There does not appear to be sufficient written description for the claimed subject matter. In particular, although a switch fabric is described (page 7, line 27-page 8, line 5 of the specification), there is no mention of the switch fabric being "reconfigurable" as claimed. There is also no explicit mention of the claimed "switch fabric ports", although mention is made of egress ports (page 8, line 5 of the specification). Although Figure 8 shows a

"scrambler for backplane connectivity" (as noted by Applicant at page 7 of the present

response), this does not appear to provide support for the claimed "backplane coupled

to the switch fabric ports". In particular, there is no indication of where the described

backplane would be connected; further, because the element labeled as the "scrambler

for backplane connectivity" is also labeled as "de-scrambler 118", it is not clear how the

part is used as both a scrambler and a de-scrambler from the drawings or specification.

Further, there does not appear to be any description of "retransmission" of any data, as

claimed. Although Applicant alleges that the specification supports the claimed

retransmission (see page 7 of the present response), the Examiner disagrees, noting

that the cited portion does not disclose "retransmission" but just discloses a further step

in the same transmission operation. That is, bits are transmitted from the ingress buffer

manager to egress ports through (or across) the switch fabric in a single transmitting

operation (see page 7, line 26-page 8, line 6 of the present specification).

Claims not specifically referred to above are rejected due to their dependence on

a rejected base claim.

Claim Rejections - 35 USC § 103

10.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

11. Claims 19-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Walker et al, US Patent 6862701, in view of Suemura, US Patent Application

Publication 2001/0008001, and Angle et al, US Patent 6477169.

In reference to Claim 19, Walker discloses a device including an ingress circuit

for processing packets received over a network (Figure 4, receiver 122; column 9, lines

37-49), an egress circuit for processing packets for sending over the network (Figure 4,

transmitter 120; column 9, lines 44-49), and a scrambler circuit that scrambles a parallel

array of input bits into an array of scrambled output bits (column 15, lines 39-42).

However, although Walker discloses inputs and outputs for transferring packets

between the ingress and egress circuits (Figure 4, bus 18 and 19; see also column 1,

lines 38-44), Walker does not explicitly disclose a switch fabric, nor that the scrambler

scrambles packet bits received from the ingress circuit.

Suemura discloses a device including an ingress circuit for processing packets

received over a network (Figure 1, input interfaces 2.0-2.3; paragraph 0064), an egress

circuit configured to process packets for sending over the network (Figure 1, output

interfaces 4.0-4.3; paragraph 0065), a reconfigurable switch fabric for transferring

scrambled data between a plurality of ports (Figure 1, optical switch 3; paragraph 0065),

and a first scrambler circuit that scrambles a first parallel array of packet bits received

from the ingress circuit into a first array of scrambled output bits for sending across the

switch fabric to the egress circuit (Figure 3, scrambler 31; paragraphs 0068, 0071-

0076). Therefore, it would have been obvious to one of ordinary skill in the art at the

time the invention was made to modify the device of Walker to include a switch fabric

and scrambling of data before sending to the switch fabric, in order to allow

synchronization of scramblers when scrambling is applied to an internal signal of a

switching system (see Suemura, paragraph 0027).

Although Walker and Suemura disclose scrambling in a network processing

device as described above, neither Walker nor Suemura explicitly discloses a

backplane connected to the switch fabric across which the scrambled bits are

transmitted. Angle discloses a device having an ingress circuit for processing packets

received over a network (Figure 1, forwarding logic 106 and fabric input 107; column 4,

lines 17-20), an egress circuit for processing packets for sending over the network

(Figure 1, fabric output 109 and output scheduler 108; column 4, lines 17-22), a

reconfigurable switch fabric for transferring data between a plurality of ports (Figure 1,

fabric 120; column 4, lines 14-18 and 42-67), and a backplane coupled to the ports over

which the data is sent (column 4, lines 12-14; column 1, lines 18-65). Therefore, it

would have been obvious to one of ordinary skill in the art at the time the invention was

made to further modify the device of Walker and Suemura by including a reconfigurable

switch fabric and backplane as disclosed by Angle, in order to increase efficiency in

switching (see Angle, column 1, line 66-column 2, line 16).

In reference to Claim 20, Walker, Suemura, and Angle further disclose a new

seed register for storing the first array of scrambled output bits and supplying the first

array of scrambled output bits to apply to a second array of bits (Walker, column 15, line

66-column 16, line 6; Figure 7, scrambler register 254; see also Suemura, paragraph

0073; see also paragraphs 0091-0095).

In reference to Claim 21, Walker, Suemura, and Angle further disclose a second scrambler circuit in the egress circuit for scrambling the packets before sending those packets over the network (Walker, Figure 4, Scrambler 133; column 9, lines 45-54), and a second new seed register (Walker, column 15, line 66-column 16, line 6; Figure 7, scrambler register 254).

In reference to Claim 22, Walker, Suemura, and Angle further disclose a first de-scrambler coupled to the egress circuit that receives the first array of scrambled output bits and de-scrambles the first array of scrambled output bits into a first array of descrambled bits (Walker, column 9, lines 37-49; Suemura, paragraphs 0064-0065).

In reference to Claim 23, Walker, Suemura, and Angle further disclose a new seed register for storing the first array of de-scrambled bits and supplying the first array of de-scrambled bits to apply to a second array of scrambled bits (Walker, column 15, line 66-column 16, line 6; Figure 7, scrambler register 254; see column 17, lines 36-42, noting that a de-scrambler can be made by rearranging the scrambler; Suemura, see paragraph 0073; see also paragraphs 0091-0095).

In reference to Claim 24, Walker, Suemura, and Angle further disclose a second de-scrambler circuit in the ingress circuit for descrambling arrays of scrambled bits received from the network (Walker, Figure 4, De-Scrambler 138; column 9, lines 45-60), and a second de-scrambler new seed register (Walker, column 15, line 66-column 16, line 6; Figure 7, scrambler register 254; see column 17, lines 36-42, noting that a de-scrambler can be made by rearranging the scrambler).

In reference to Claim 25, Walker discloses a method including receiving packet data from a network (Figure 4, receiver 122; column 9, lines 37-49), scrambling a parallel array of bits from the packet data into an array of first scrambled output bits (column 15, lines 39-42), and descrambling the first scrambled output bits (see column 17, lines 36-42). However, although Walker discloses inputs and outputs for transferring packets between the ingress and egress circuits (Figure 4, bus 18 and 19; see also column 1, lines 38-44), Walker does not explicitly disclose transferring scrambled bits through a switch fabric, nor does Walker explicitly disclose descrambling scrambled bits after transferring the scrambled bits through a switch fabric.

Suemura discloses a method including receiving packet data from a network (Figure 1, input interfaces 2.0-2.3; paragraph 0064), scrambling a first parallel array of bits from the packet data into an array of first scrambled output bits (Figure 3, scrambler 31; paragraphs 0068, 0071-0076), transferring the first scrambled output bits through a reconfigurable switch fabric (Figure 1, optical switch 3; paragraph 0065), and descrambling the first scrambled output bits after transferring the first scrambled output bits through the switch fabric (Figure 6, descrambler 45; paragraphs 0079, 0084-0090). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the method of Walker to include a transferring scrambled bits through a switch fabric descrambling the scrambled bits after transfer through the switch fabric, in order to allow synchronization of scramblers when scrambling is applied to an internal signal of a switching system (see Suemura, paragraph 0027).

Although Walker and Suemura disclose scrambling in a switching method as described above, neither Walker nor Suemura explicitly discloses a backplane connected to the switch fabric across which the scrambled bits are transmitted. Angle discloses a method including receiving packet data from a network (Figure 1, forwarding logic 106 and fabric input 107; column 4, lines 17-20) and transmitting data over a backplane through a reconfigurable switch fabric (Figure 1, fabric 120; column 4, lines 12-18 and 42-67; column 1, lines 18-65). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to further modify the method of Walker and Suemura by including a reconfigurable switch fabric and backplane as disclosed by Angle, in order to increase efficiency in switching (see Angle, column 1, line 66-column 2, line 16).

In reference to Claim 26, Walker, Suemura, and Angle further disclose storing the first scrambled output bits as new seed values for applying scramble polynomials to a second array of bits (Walker, column 15, line 66-column 16, line 6; Figure 7, scrambler register 254; Suemura, see paragraph 0073; see also paragraphs 0091-0095)

In reference to Claim 27, Walker, Suemura, and Angle further disclose selecting the new seed values according to a polynomial value, a bit length, and a bit position (Walker, column 15, lines 39-42; column 16, lines 12-50; see Figure 7; Suemura, paragraph 0073).

In reference to Claim 28, Walker, Suemura, and Angle further disclose that a
1+X(39)+X(58) scramble polynomial is applied to each bit (Walker, column 15, lines 39-42).

In reference to Claim 29, Walker, Suemura, and Angle further disclose that de-scrambling includes receiving first scrambled bits, storing an array of previously de-scrambled output bits, and applying the array of previously de-scrambled bits during descrambling of the scrambled bits (Walker, column 15, line 66-column 16, line 6; Figure 7, scrambler register 254; see column 17, lines 36-42, noting that a de-scrambler can be made by rearranging the scrambler; Suemura, paragraph 0085; see also paragraphs 0091-0095).

In reference to Claim 30, Walker, Suemura, and Angle further disclose storing de-scrambled output bits as new seed values for applying to a next group of scrambled output bits (Walker, column 15, line 66-column 16, line 6; Figure 7, scrambler register 254; see column 17, lines 36-42, noting that a de-scrambler can be made by rearranging the scrambler; Suemura, paragraph 0085; see also paragraphs 0091-0095).

Conclusion

12.   The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

    a.   Edholm, US Patent 5875314, discloses a configurable connection fabric between a switching fabric and a backplane.

b.   Maher, III et al, US Patent 6381242, discloses a packet processing system including switch fabric that forwards traffic between the ingress and egress ports of a device across the backplane of the device.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Zachary A. Davis whose telephone number is (571) 272-3870. The examiner can normally be reached on weekdays 8:30-6:00, alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Emmanuel Moise can be reached on (571) 272-3865. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

zad

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